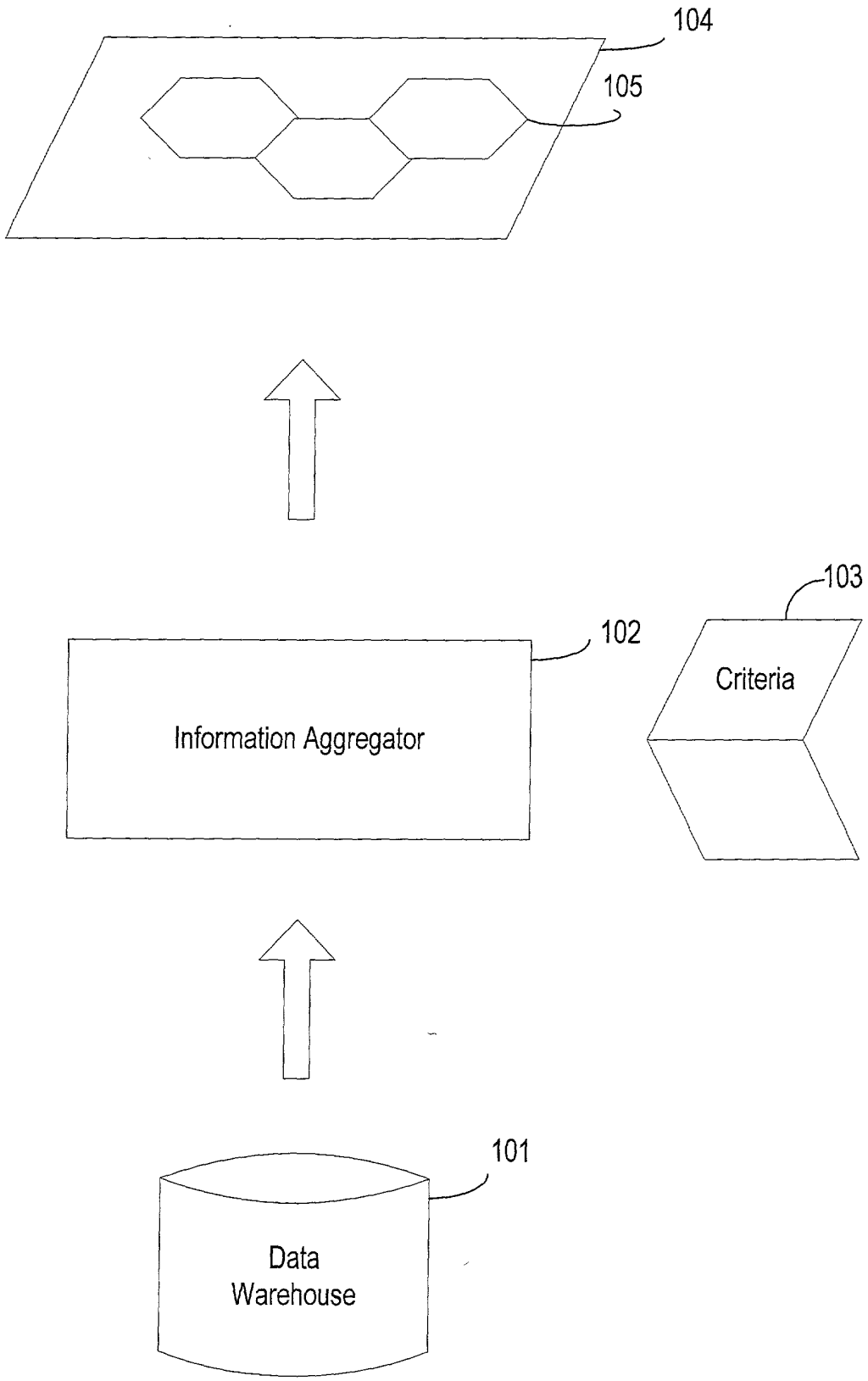

104
105
103
102
Criteria
Information Aggregator
101
Data
Warehouse

Fig. 1A

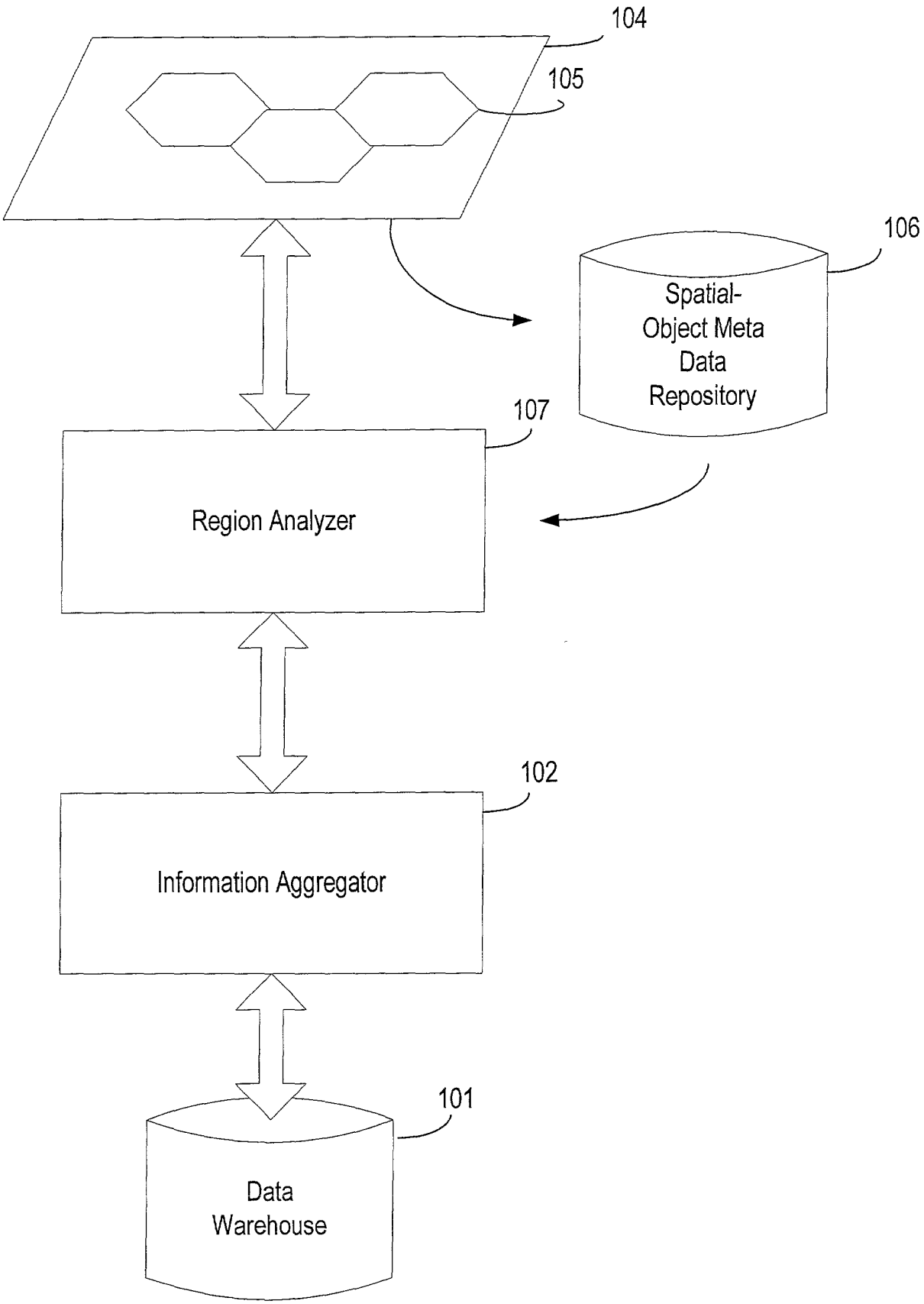

104
105
106
Spatial-
Object Meta
Data
Repository
107
Region Analyzer
102
Information Aggregator
101
Data
Warehouse

Fig. 1B

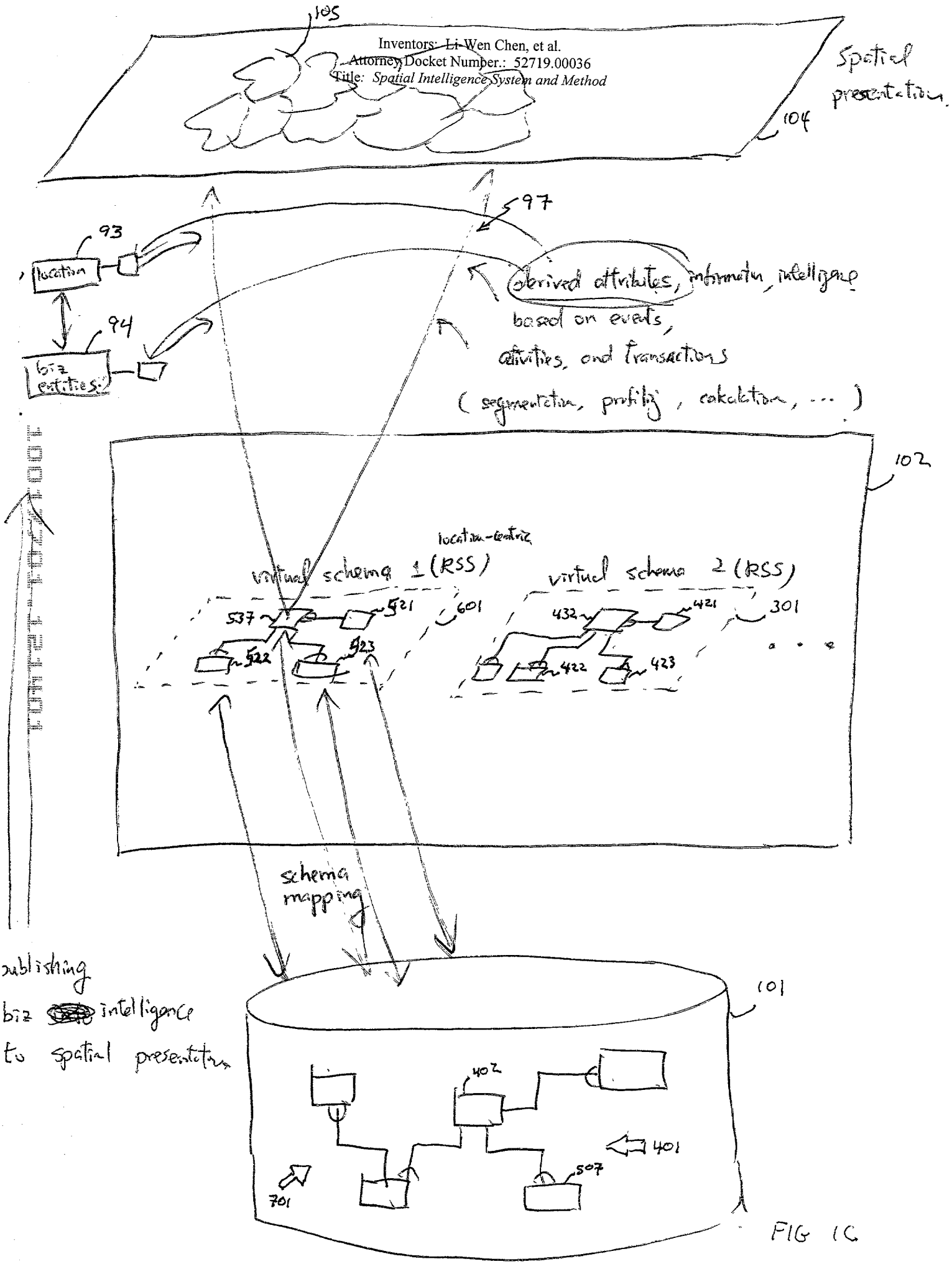

105
Spatial presentation
104
97
93
location
94
biz entities
derived attributes, information, intelligence
based on events,
activities, and transactions
(segmentation, profiling, calculation, ...)
102
location-centric
virtual schema 1 (RSS)
virtual schema 2 (RSS)
537
521
601
522
523
432
421
301
422
423
schema mapping
publishing
biz intelligence
to spatial presentation
101
402
401
507
701

FIG 1C

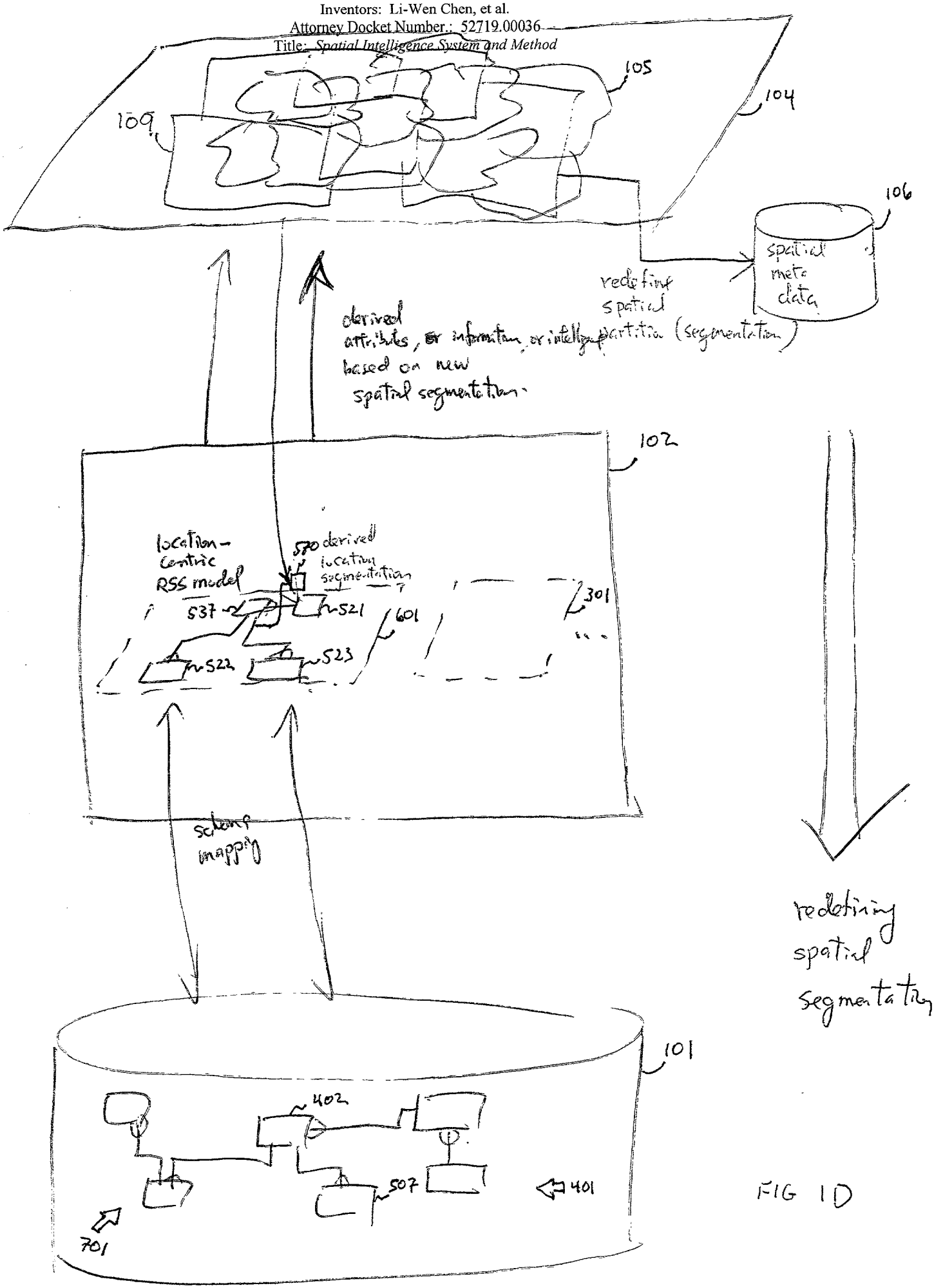

105
104
109
106
spatial meta data
redefine spatial
derived attributes, or information, or intelligence based on new spatial segmentation
partition (segmentation)
102
location-centric RSS model
530 derived location segmentation
537
521
601
301
522
523
schema mapping
redefining spatial segmentation
101
402
507
401
701

FIG 1D

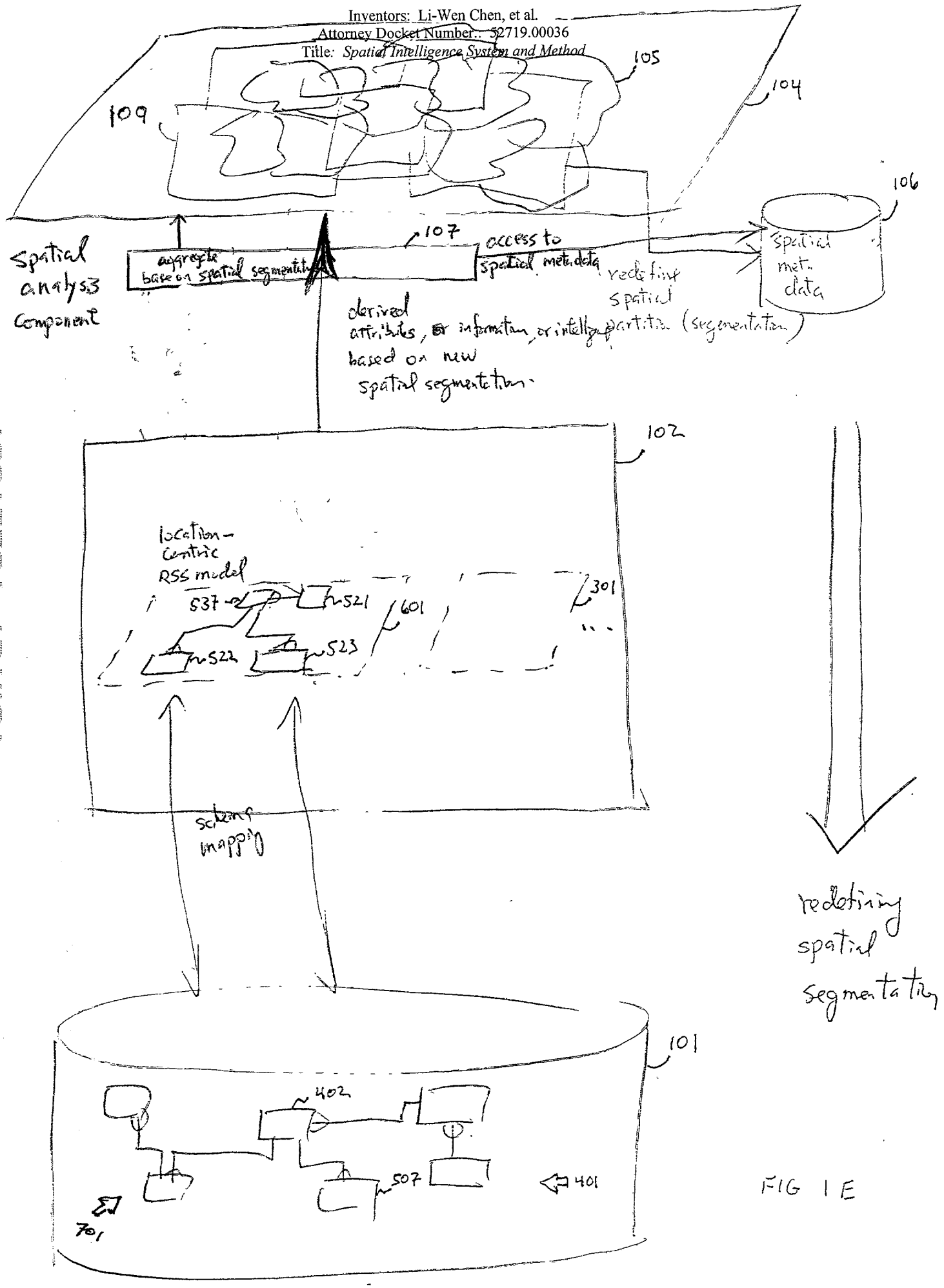

105
104
109
106
107
spatial analysis component
aggregate based on spatial segmentation
access to spatial metadata
spatial meta data
redefine spatial partition (segmentation)
derived attributes, or information, or intelligence based on new spatial segmentation.
102
location-centric RSS model
537
521
601
301
522
523
schema mapping
redefining spatial segmentation
101
402
507
401
701

FIG 1E

Spatial Intelligence Analysis

Business Objects

Customers; Prospects;

Stores; Suppliers;

Customer's Behavior; Demographics

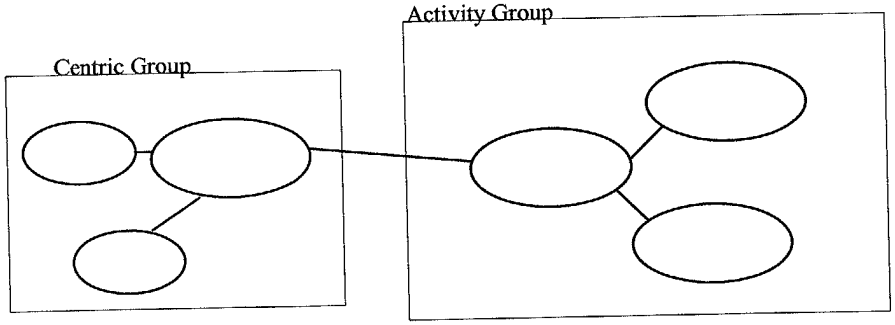
Cities; Counties; Bridges; Police Districts;

Products; Merchandises; etc

Conforming Dimension

Topical Modeling(RSS);Spatial Extension; Geo-Coding etc..

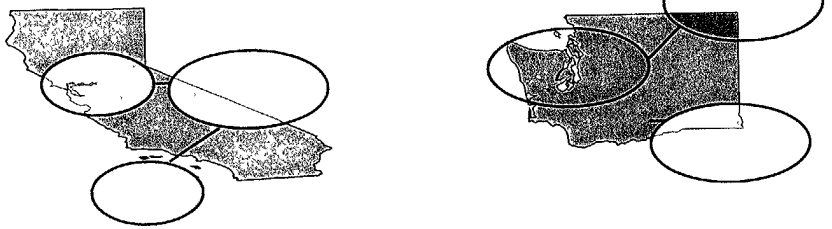
C-Insight Analysis:
1.Derived Attributes
2.Segmentation
3. Profiling
4.Events
5.Mining



Spatial Analysis

Clustering,Home Range,Spider Diagram,etc…

C-Insight Spatial Analysis:
1.Spatial Segmentation
2.Zoning



Relationships

FIG. 1F

Inventors: Li-Wen Chen, et al.
Attorney Docket Number:: 52719.00036
Title: *Spatial Intelligence System and Method*

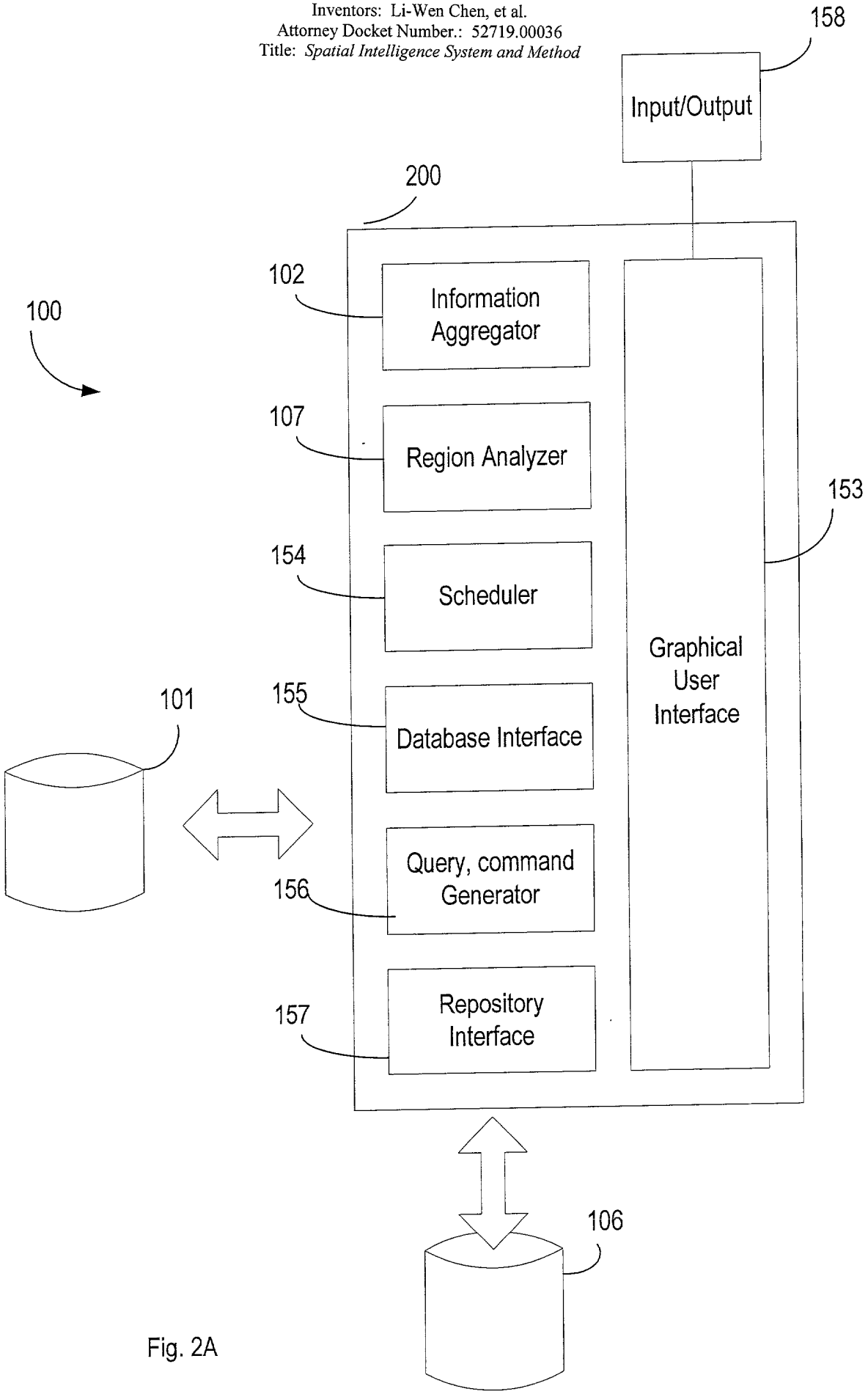

158
Input/Output
200
102
Information Aggregator
100
107
Region Analyzer
153
154
Scheduler
Graphical User Interface
101
155
Database Interface
Query, command Generator
156
Repository Interface
157
106

Fig. 2A

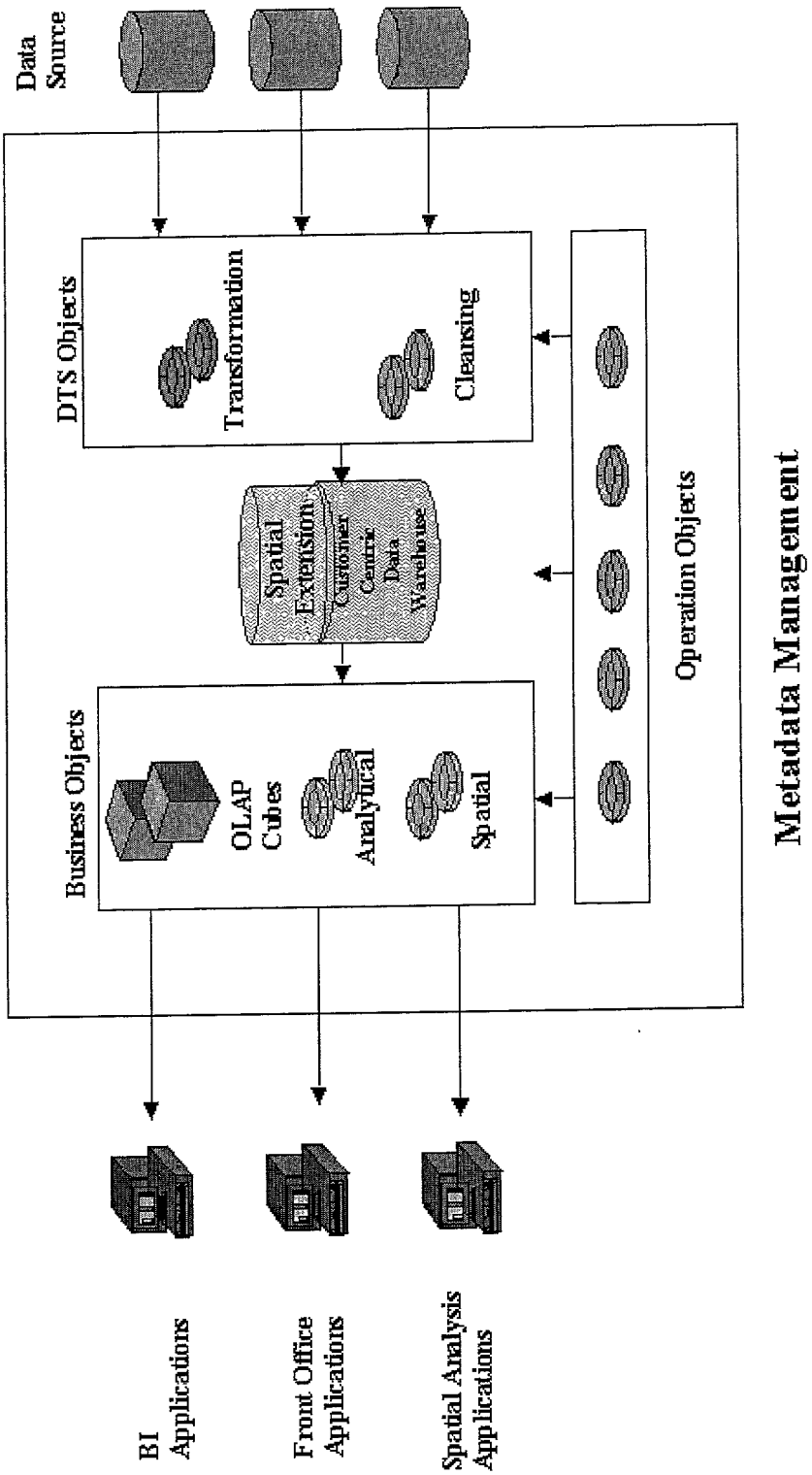

Data Source
DTS Objects
Transformation
Cleansing
Spatial Extension
Customer Centric Data Warehouse
Business Objects
OLAP Cubes
Analytical
Spatial
Operation Objects
Metadata Management
BI Applications
Front Office Applications
Spatial Analysis Applications

Fig. 2B

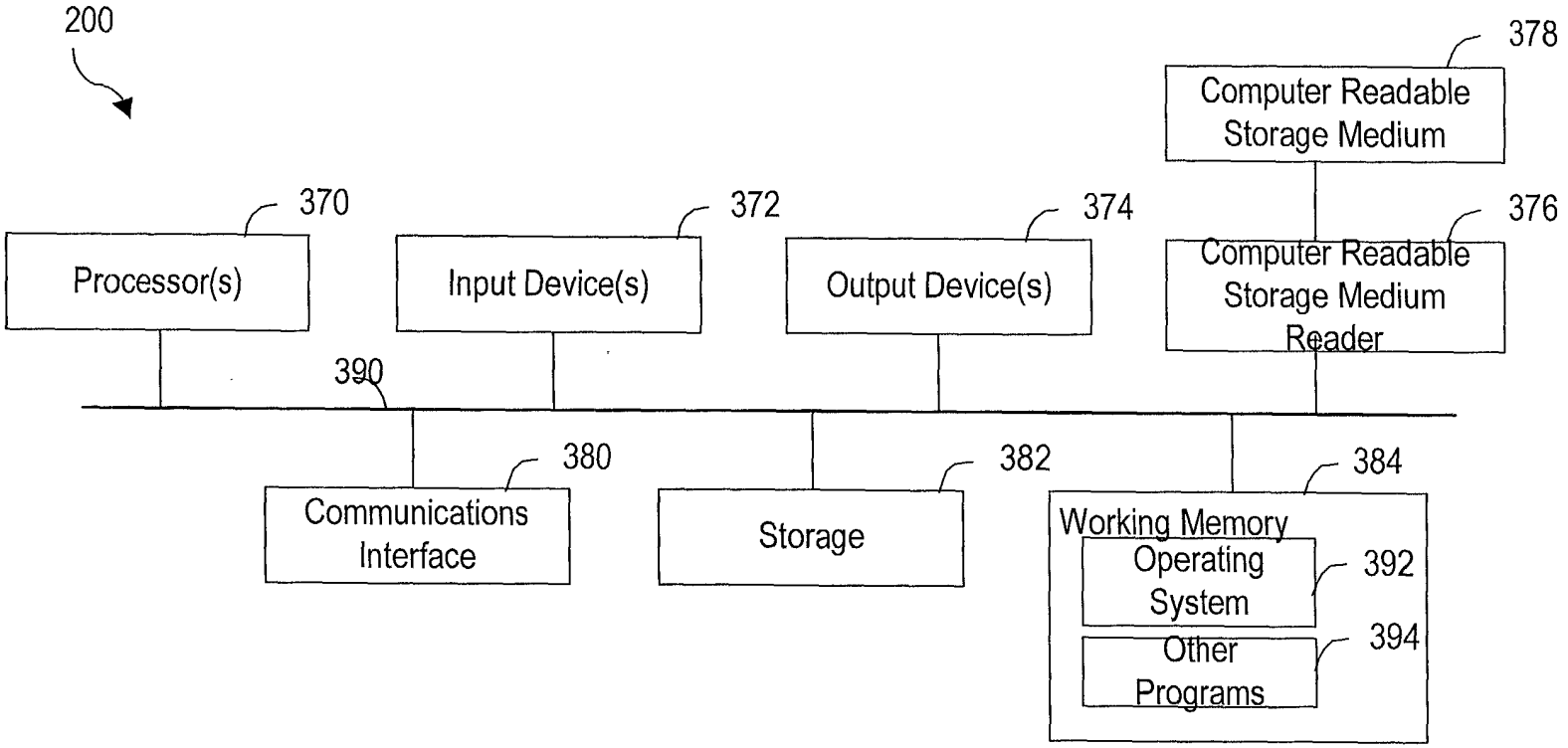

200
378
Computer Readable Storage Medium
370
372
374
376
Processor(s)
Input Device(s)
Output Device(s)
Computer Readable Storage Medium Reader
390
380
382
384
Communications Interface
Storage
Working Memory
Operating System
392
Other Programs
394

FIG. 3

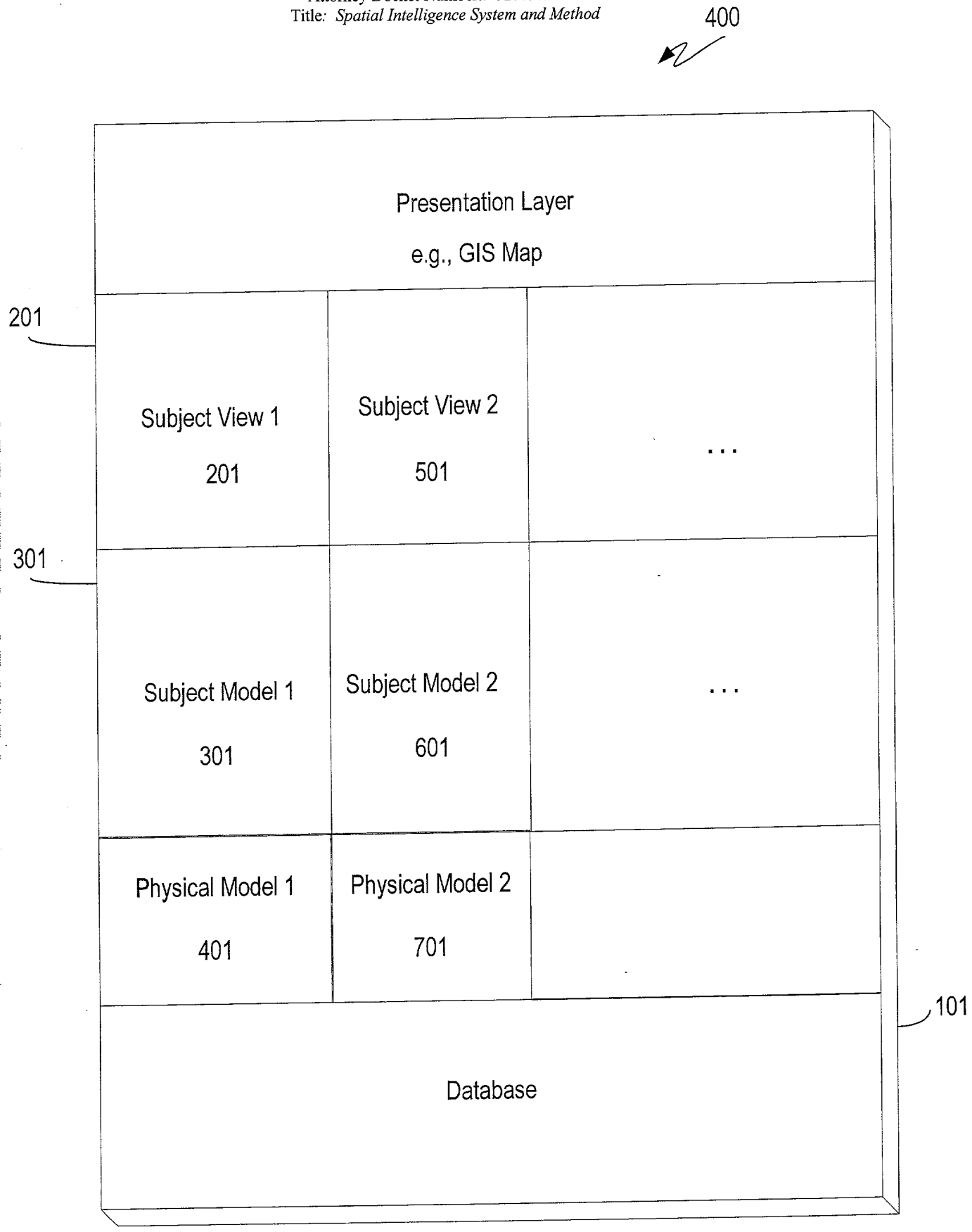

400
Presentation Layer
e.g., GIS Map
201
Subject View 1
201
Subject View 2
501
...
301
Subject Model 1
301
Subject Model 2
601
...
Physical Model 1
401
Physical Model 2
701
101
Database

Fig. 4A

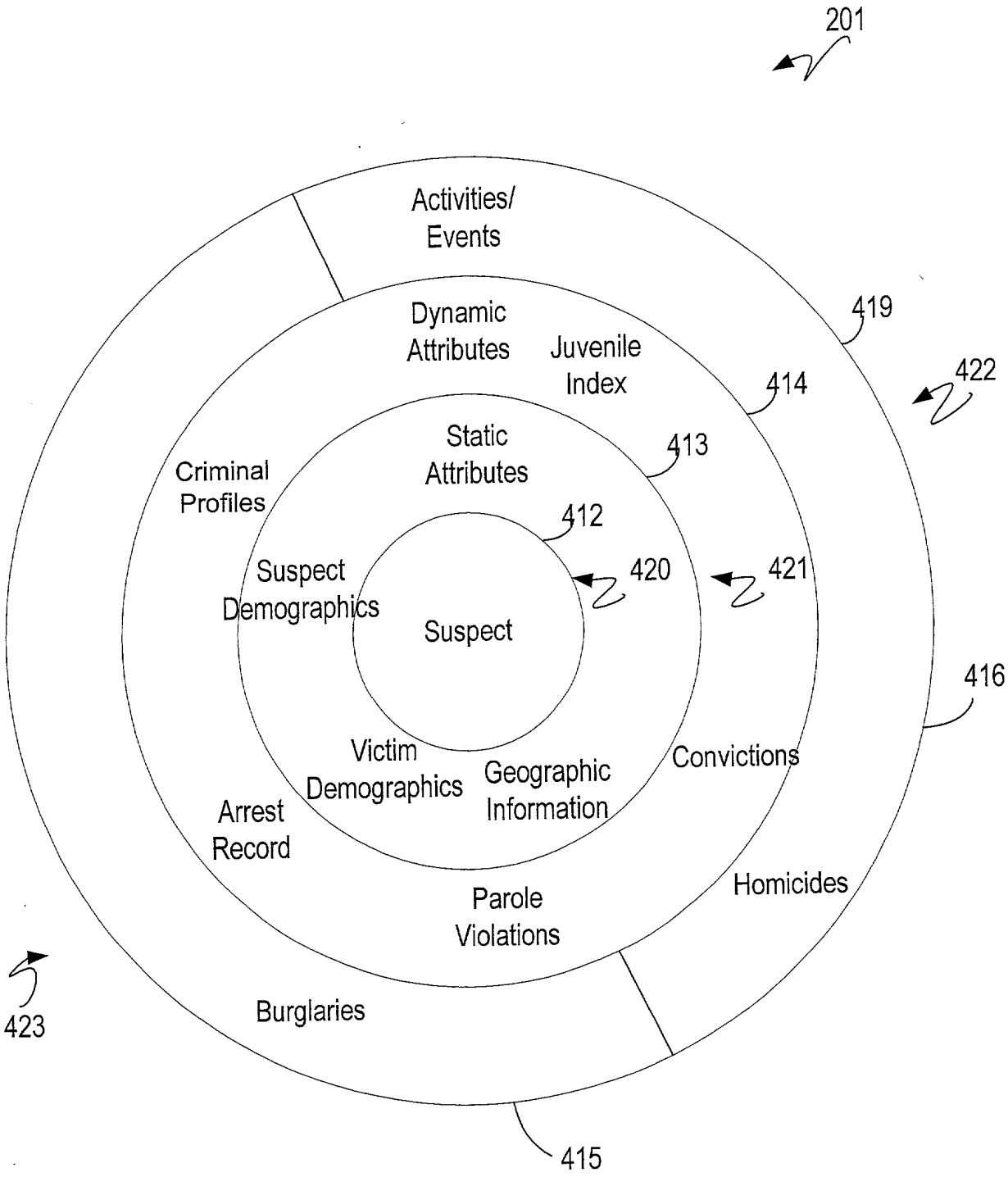

201
Activities/
Events
Dynamic
Attributes
Juvenile
Index
419
422
414
Static
Attributes
413
Criminal
Profiles
412
Suspect
Demographics
420
421
Suspect
416
Victim
Demographics
Geographic
Information
Convictions
Arrest
Record
Homicides
Parole
Violations
423
Burglaries
415

Fig. 4B

Patent Pending

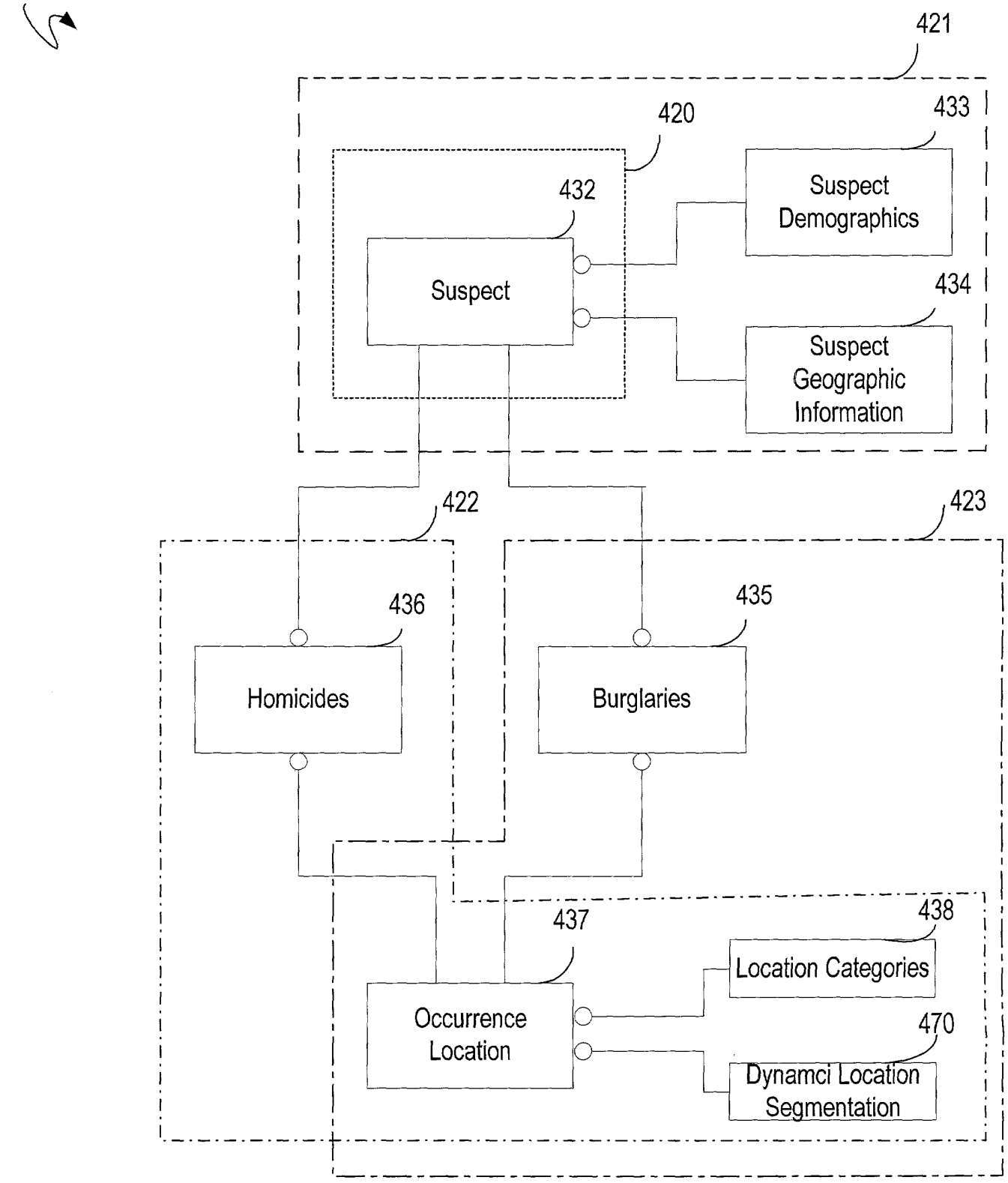


Fig. 4C

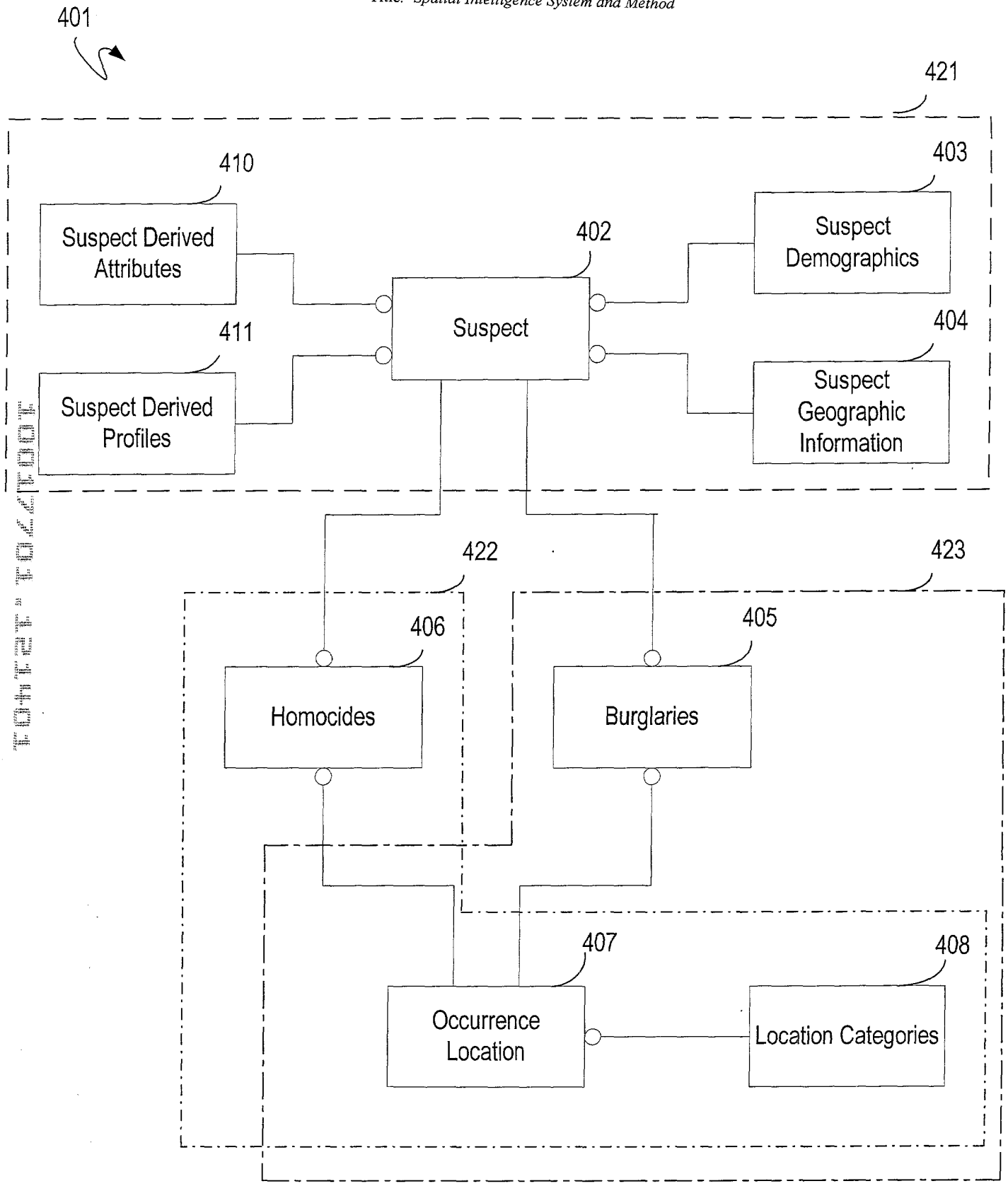

401
421
410
Suspect Derived Attributes
411
Suspect Derived Profiles
402
Suspect
403
Suspect Demographics
404
Suspect Geographic Information
422
406
Homocides
423
405
Burglaries
407
Occurrence Location
408
Location Categories

Fig. 4D

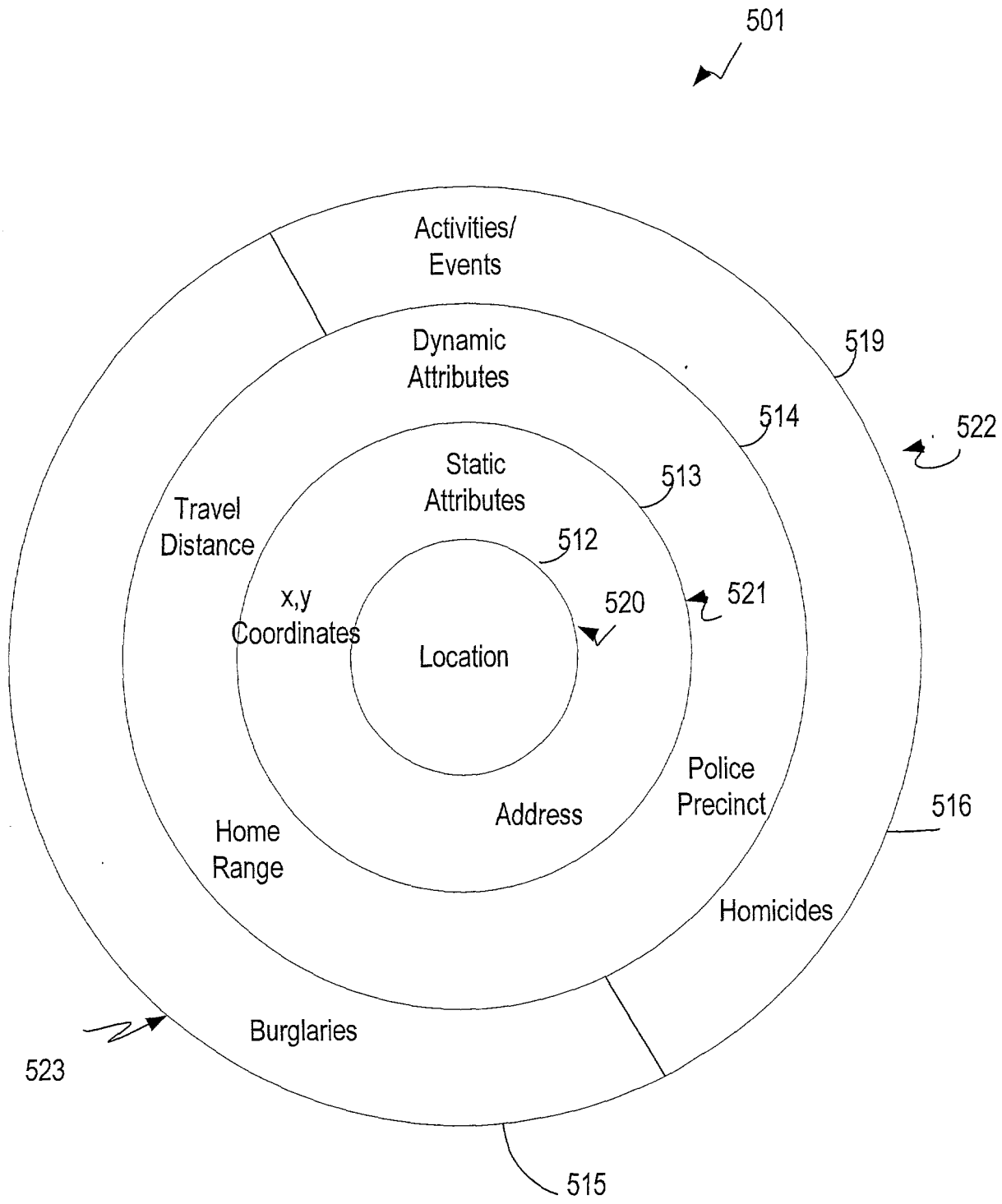

501
Activities/
Events
Dynamic
Attributes
519
514
522
Static
Attributes
513
Travel
Distance
512
x,y
Coordinates
520
521
Location
Police
Precinct
516
Address
Home
Range
Homicides
Burglaries
523
515

Fig. 5A

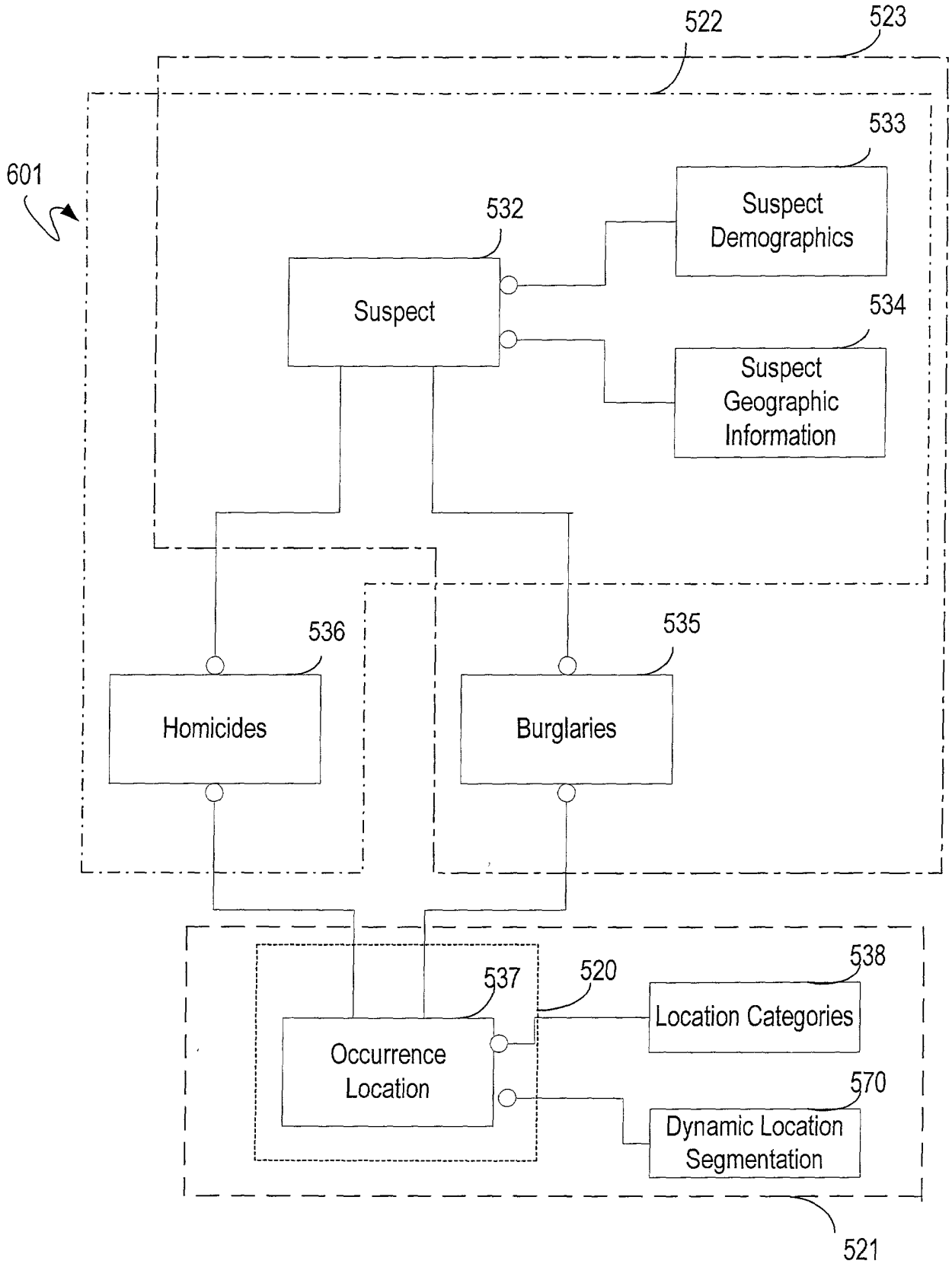

522
523
533
601
532
Suspect Demographics
Suspect
534
Suspect Geographic Information
536
535
Homicides
Burglaries
538
537
520
Location Categories
Occurrence Location
570
Dynamic Location Segmentation
521

Fig. 5B

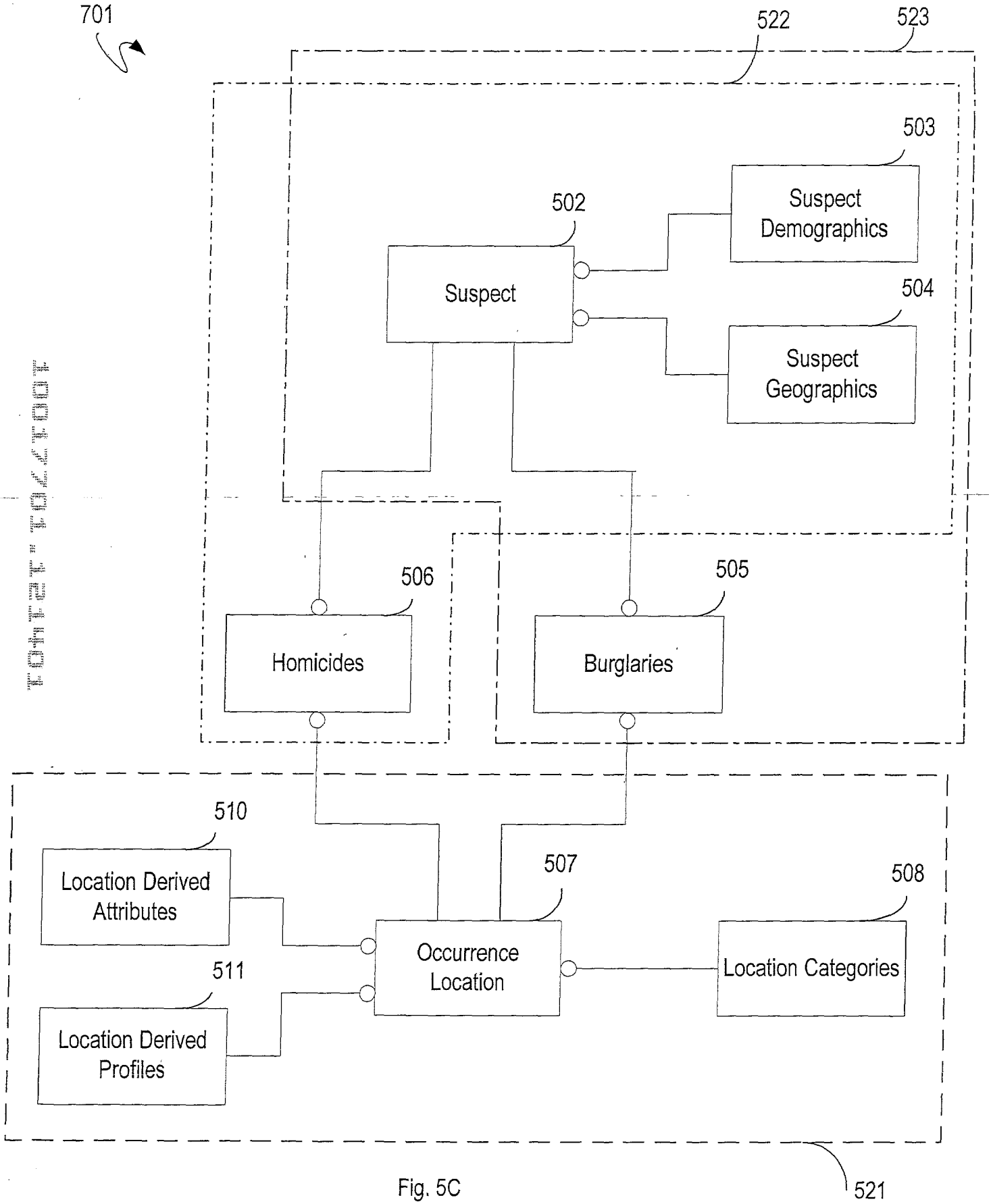

701
522
523
503
Suspect Demographics
502
Suspect
504
Suspect Geographics
506
505
Homicides
Burglaries
510
Location Derived Attributes
507
508
Occurrence Location
Location Categories
511
Location Derived Profiles
521

Fig. 5C

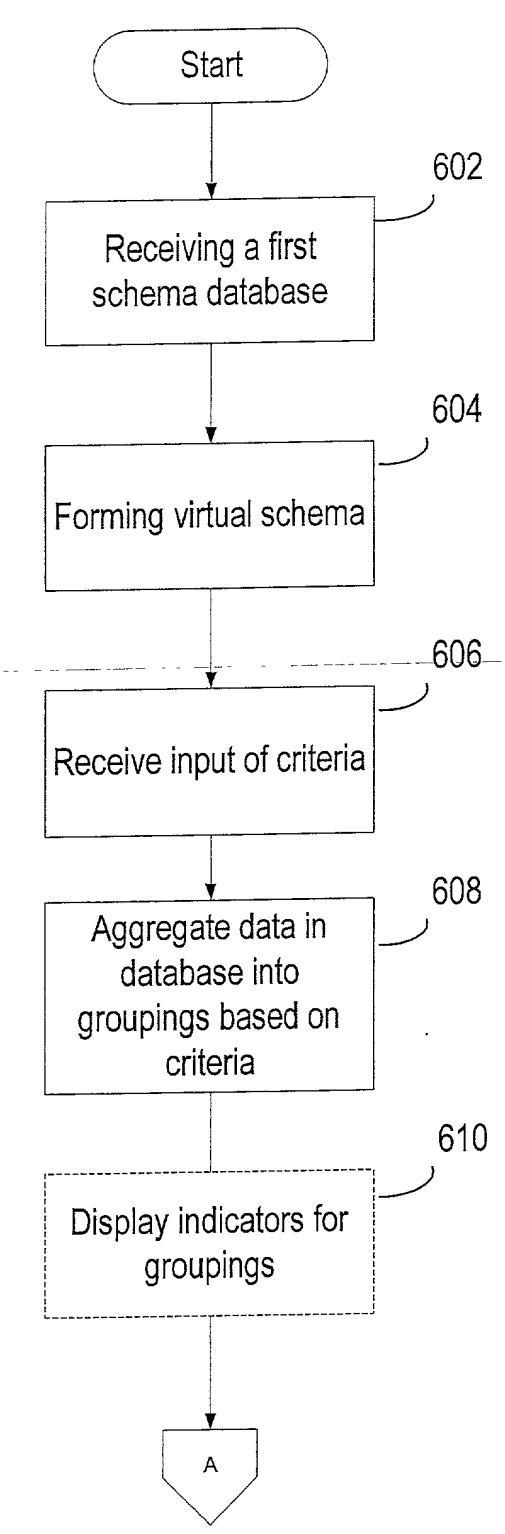

601
Start
602
Receiving a first schema database
604
Forming virtual schema
606
Receive input of criteria
608
Aggregate data in database into groupings based on criteria
610
Display indicators for groupings
A

Fig. 6A

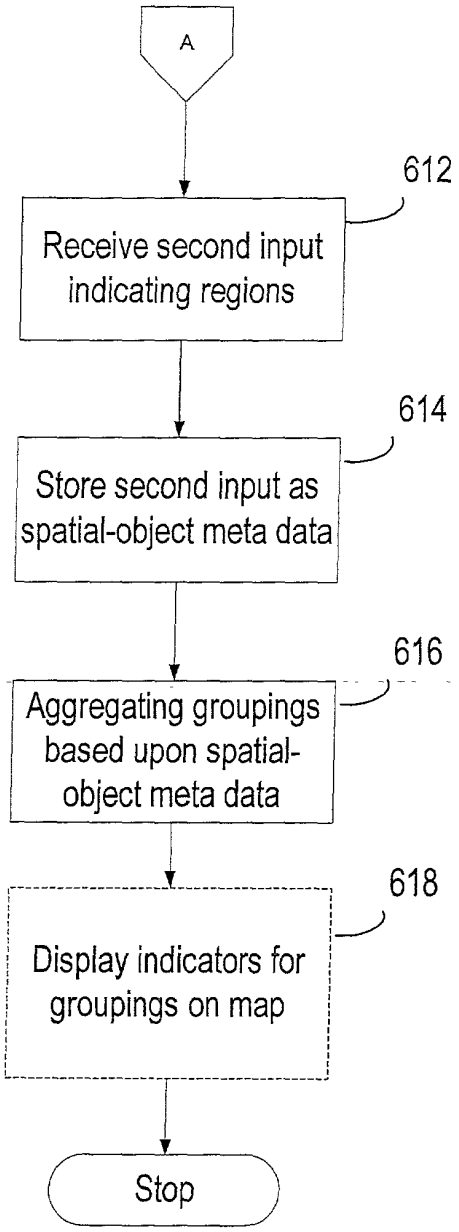

A
603
612
Receive second input indicating regions
614
Store second input as spatial-object meta data
616
Aggregating groupings based upon spatial-object meta data
618
Display indicators for groupings on map
Stop

Fig. 6B

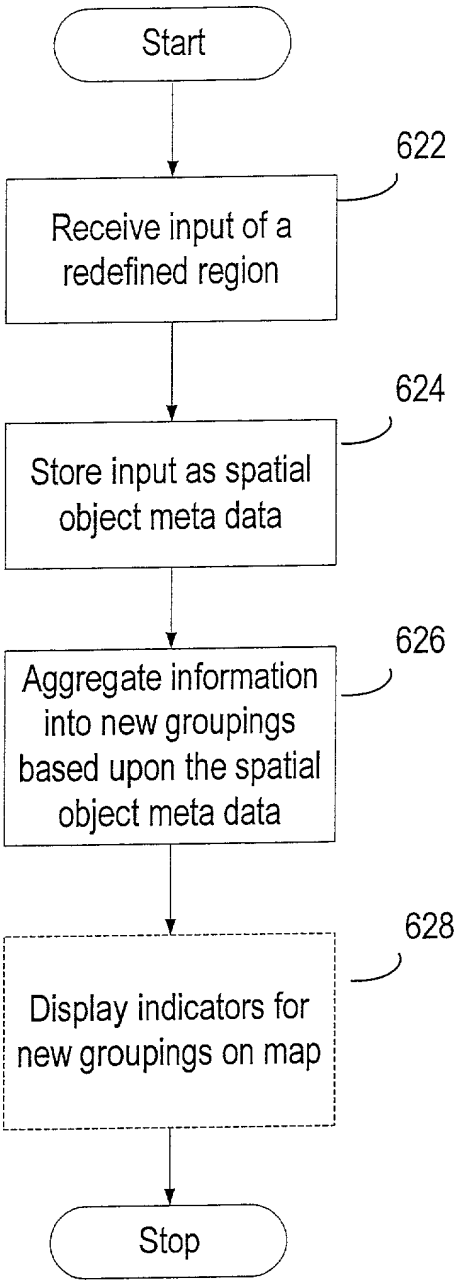

Start
605
622
Receive input of a redefined region
624
Store input as spatial object meta data
626
Aggregate information into new groupings based upon the spatial object meta data
628
Display indicators for new groupings on map
Stop

Fig. 6C

Patent Application

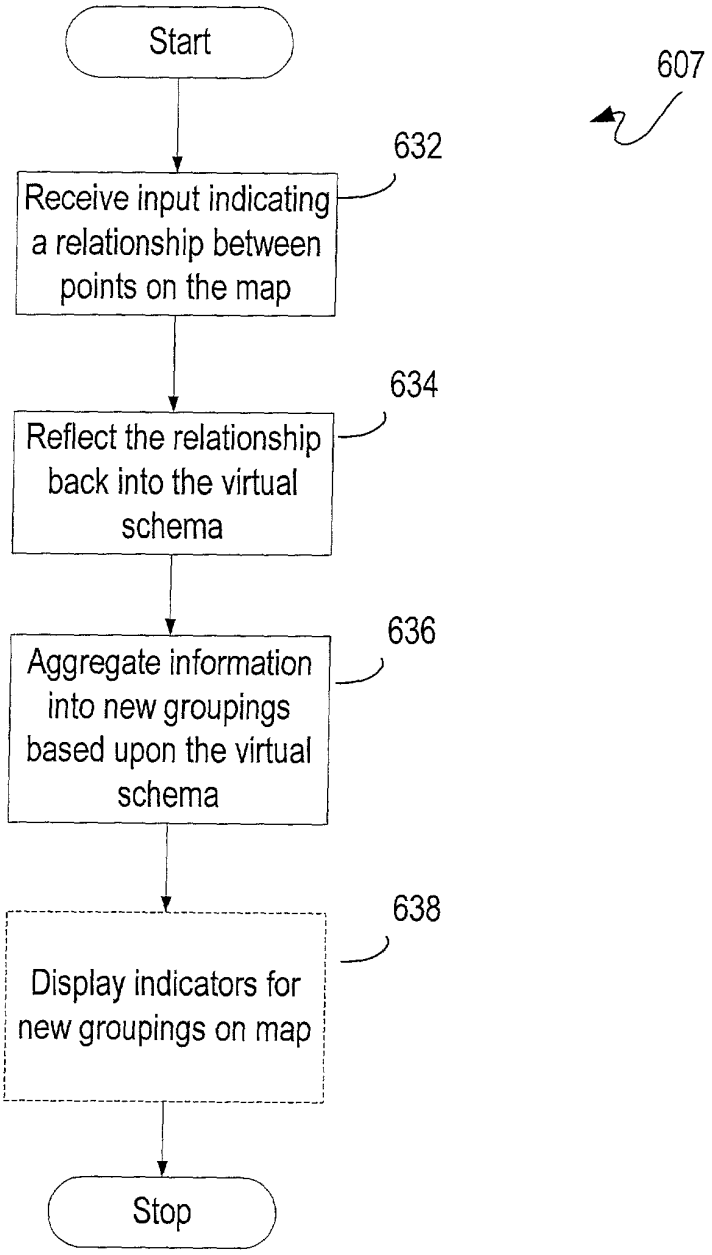


Fig. 6D

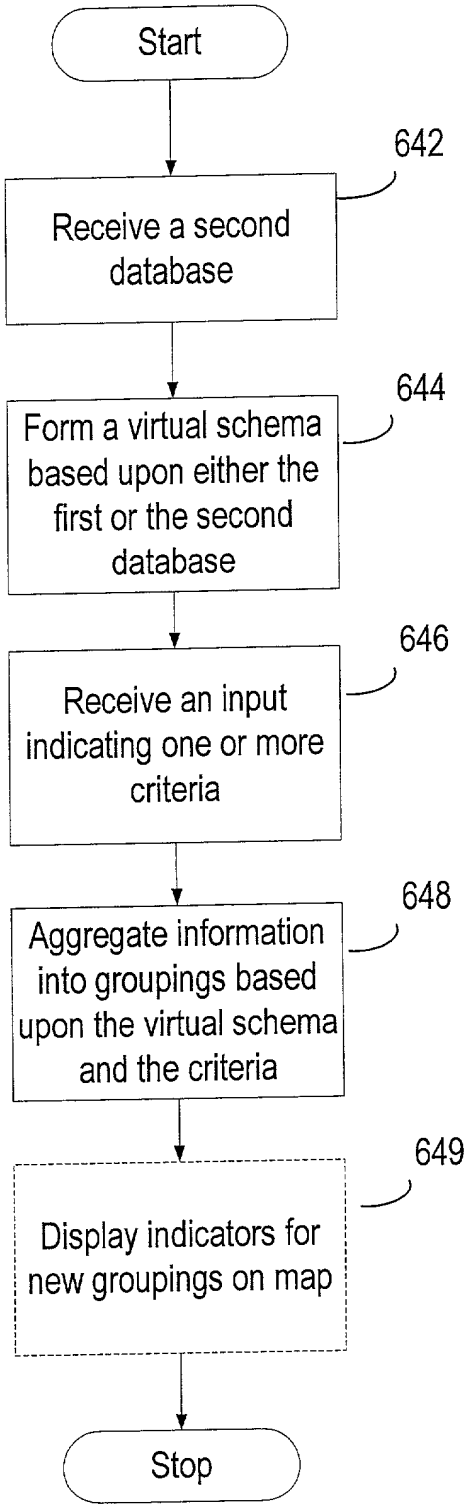

Start
609
642
Receive a second database
644
Form a virtual schema based upon either the first or the second database
646
Receive an input indicating one or more criteria
648
Aggregate information into groupings based upon the virtual schema and the criteria
649
Display indicators for new groupings on map
Stop

Fig. 6E

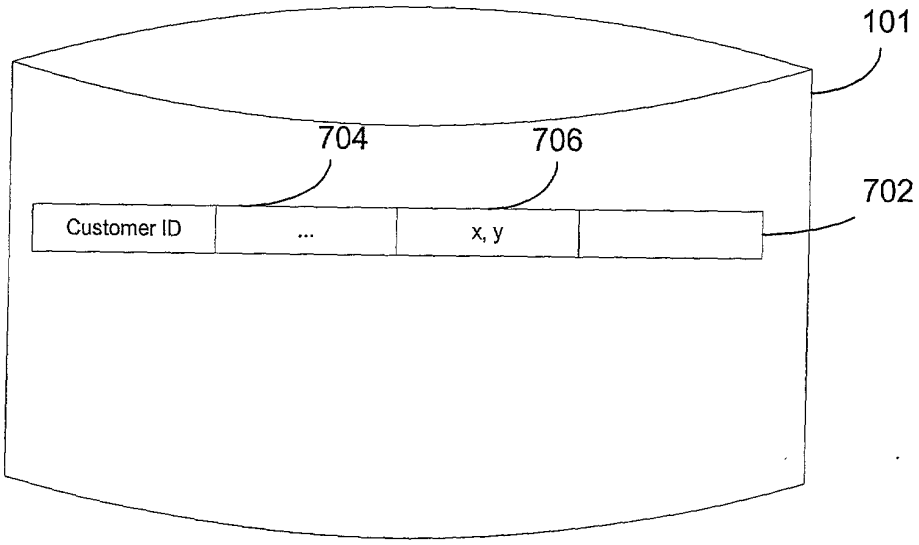
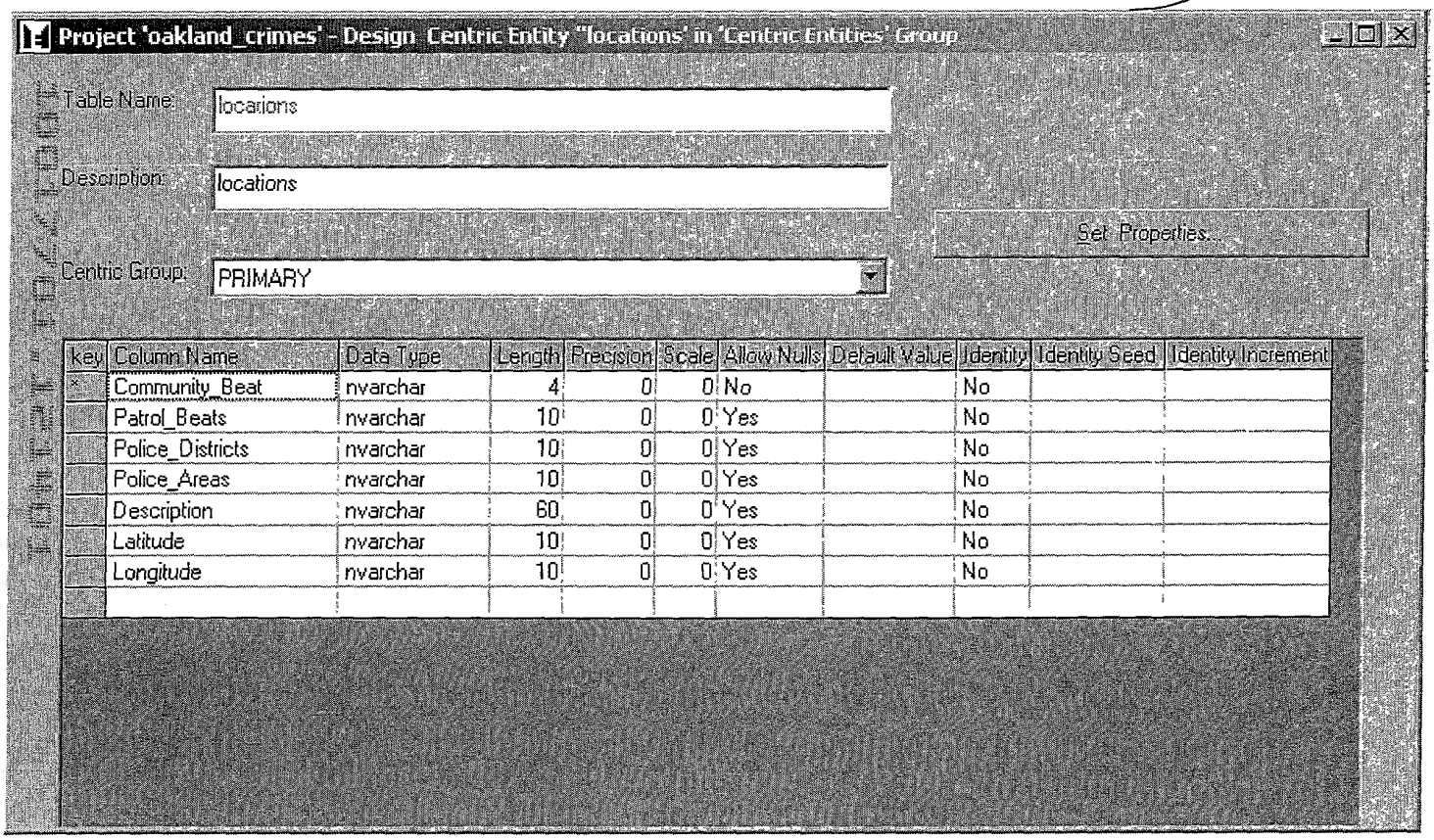


Fig. 7

802



Key	Column Name	Data Type	Length	Precision	Scale	Allow Nulls	Default Value	Identity	Identity Seed	Identity Increment
	Community_Beat	nvarchar	4	0	0	No		No		
	Patrol_Beats	nvarchar	10	0	0	Yes		No		
	Police_Districts	nvarchar	10	0	0	Yes		No		
	Police_Areas	nvarchar	10	0	0	Yes		No		
	Description	nvarchar	60	0	0	Yes		No		
	Latitude	nvarchar	10	0	0	Yes		No		
	Longitude	nvarchar	10	0	0	Yes		No		

Fig. 8

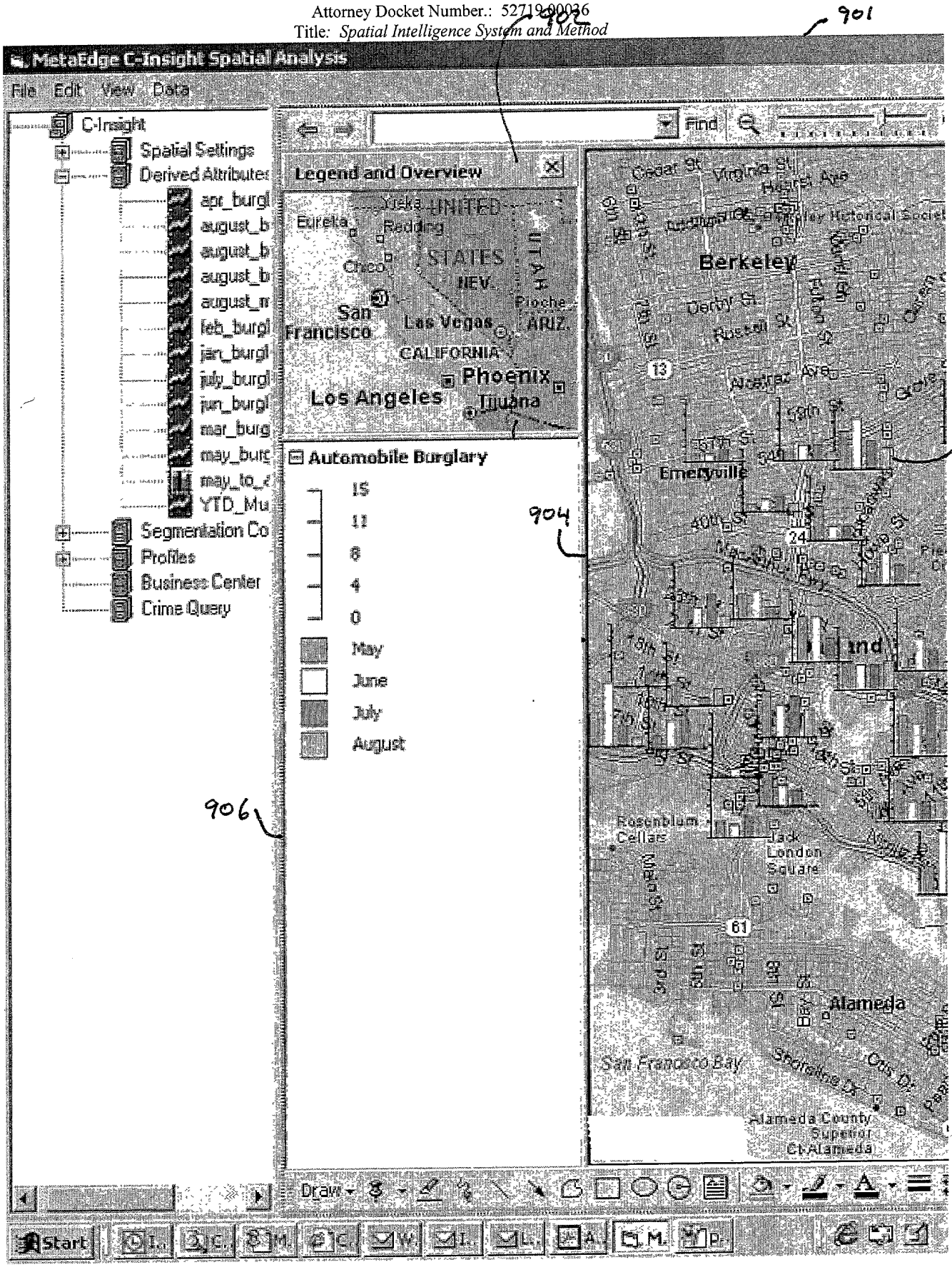

902
901
MetaEdge C-Insight Spatial Analysis
File Edit View Data
C-Insight
Spatial Settings
Derived Attributes
apr_burgl
august_b
august_b
august_b
august_n
feb_burgl
jan_burgl
july_burgl
jun_burgl
mar_burg
may_burg
may_to_
YTD_Mu
Segmentation Co
Profiles
Business Center
Crime Query
Find
Legend and Overview
Eureka
Redding
Chico
San Francisco
Las Vegas
Phoenix
Los Angeles
Tijuana
Automobile Burglary
15
11
8
4
0
May
June
July
August
904
906
908
Berkeley
Emeryville
Alameda
Draw
Start

FIG. 9A

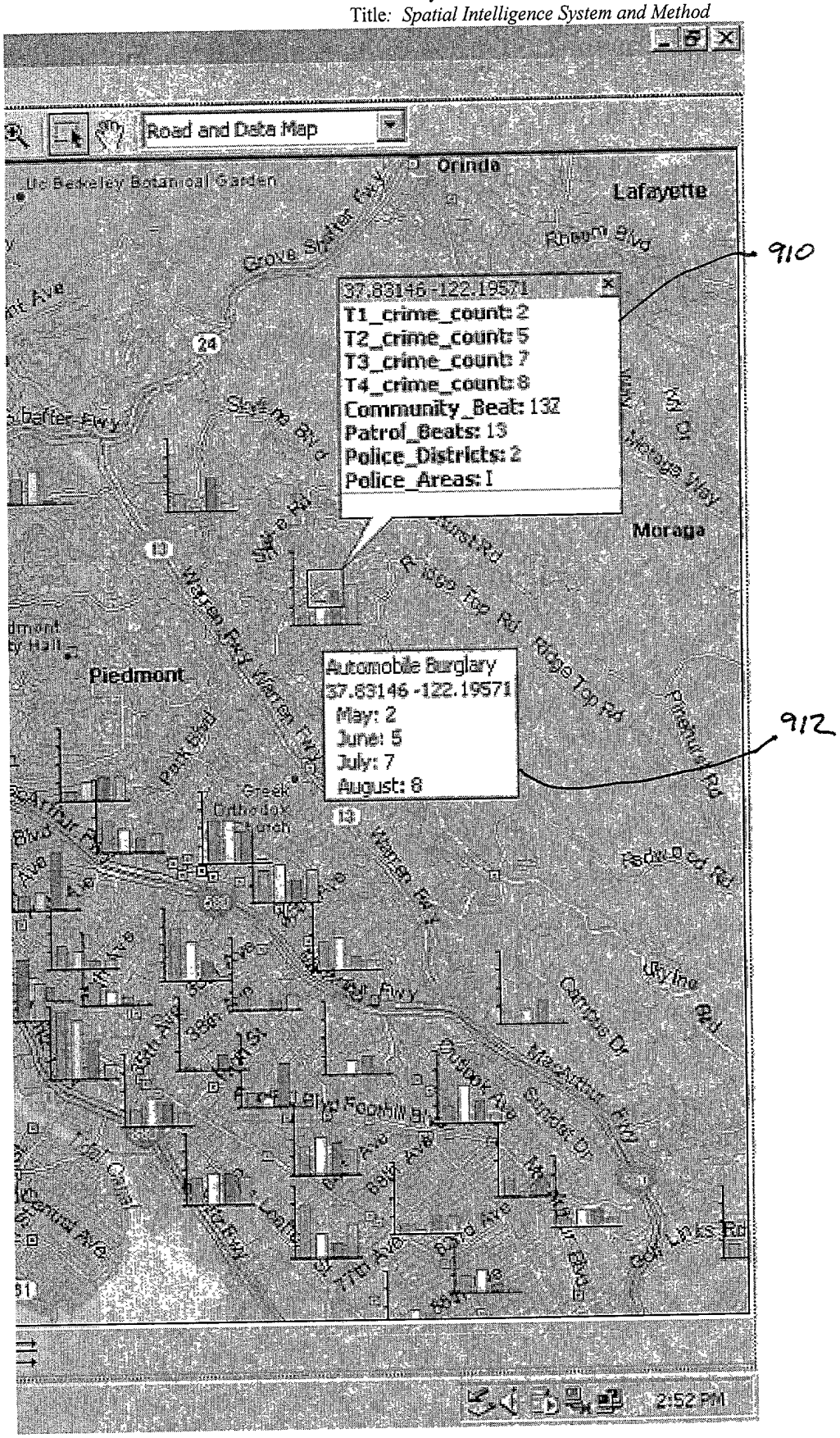

Road and Data Map
Orinda
Lafayette
Moraga
Piedmont
37.83146 -122.19571
T1_crime_count: 2
T2_crime_count: 5
T3_crime_count: 7
T4_crime_count: 8
Community_Beat: 132
Patrol_Beats: 13
Police_Districts: 2
Police_Areas: 1
Automobile Burglary
37.83146 -122.19571
May: 2
June: 5
July: 7
August: 8
910
912
2:52 PM

FIG. 9B

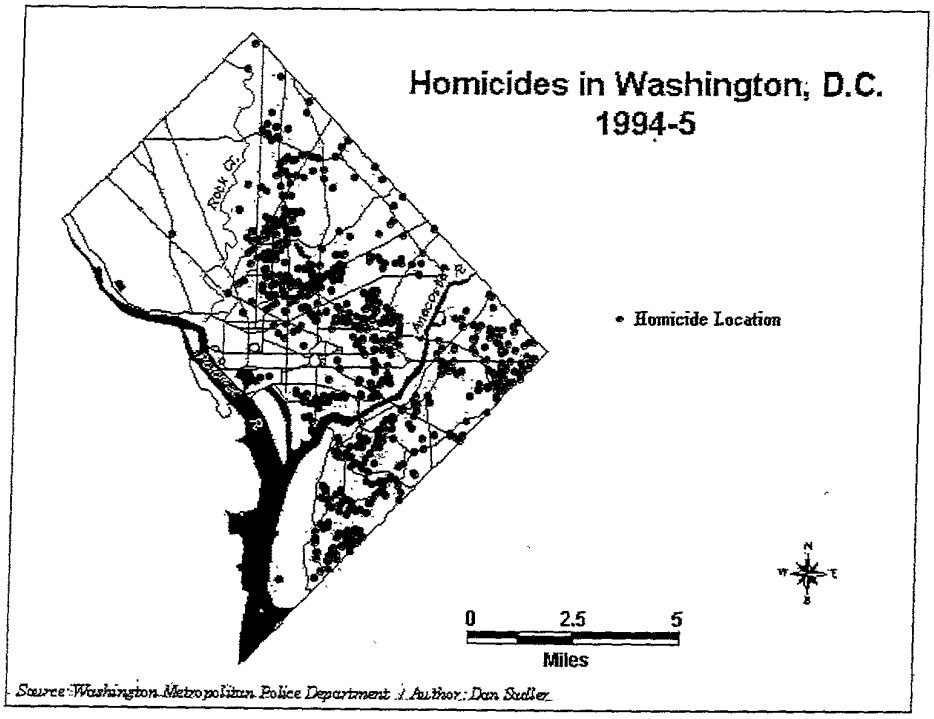

Homicides in Washington, D.C.
1994-5
Homicide Location
0
2.5
5
Miles
Source: Washington Metropolitan Police Department / Author: Dan Sudler

FIG 10

Express Mail No. EV 042 762 804

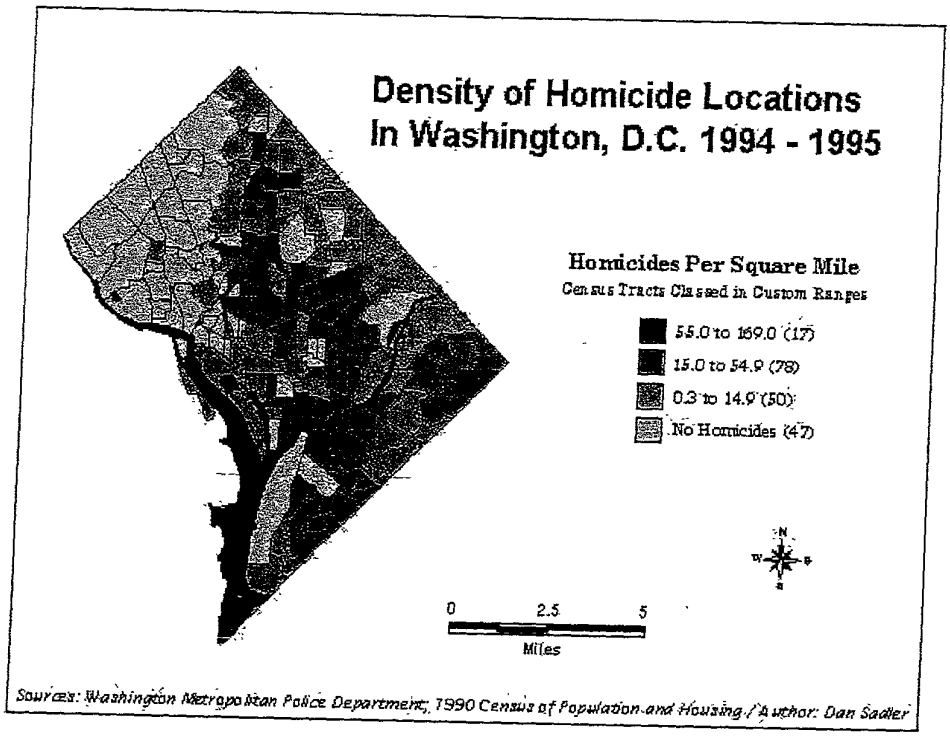


FIG. 1

Express Mail No. EV 274 702 405

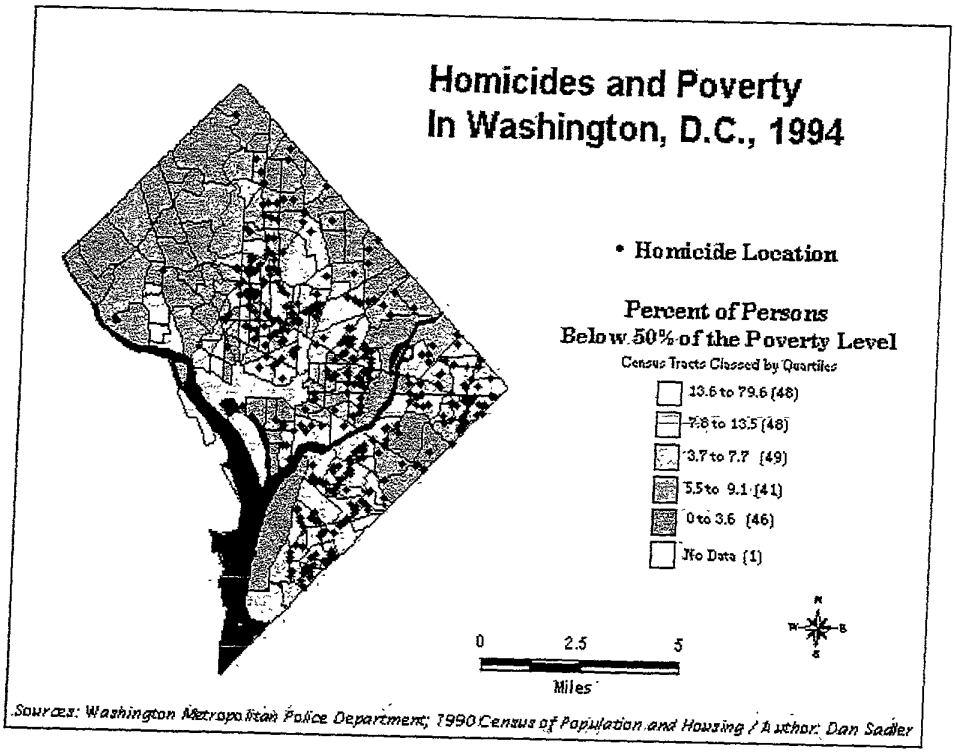
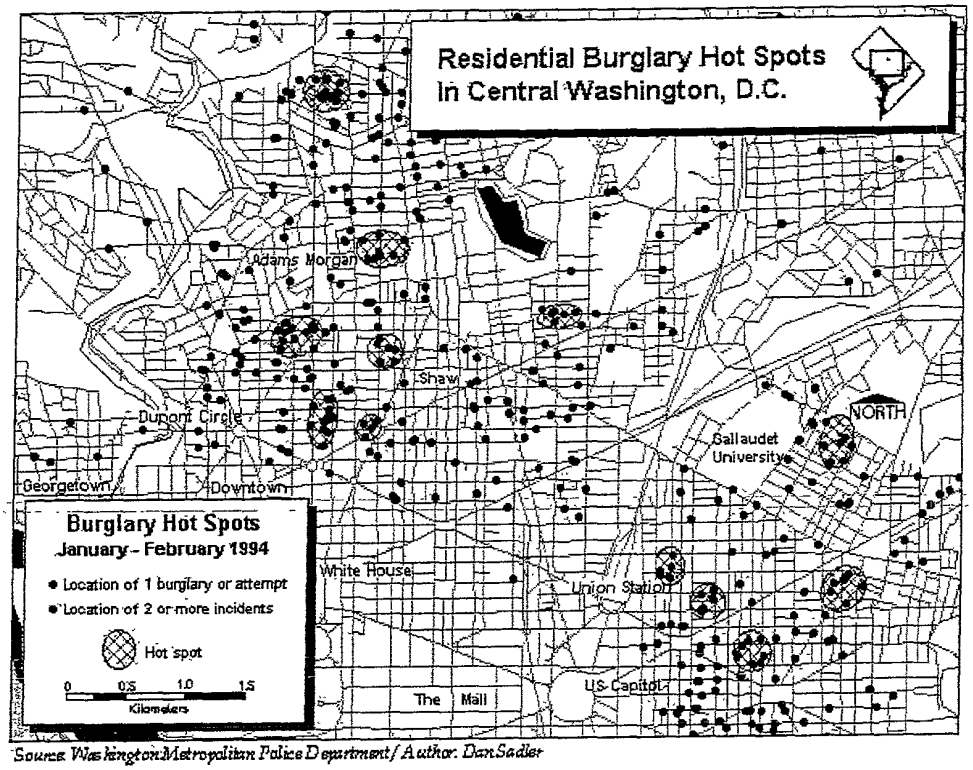


FIG. 12

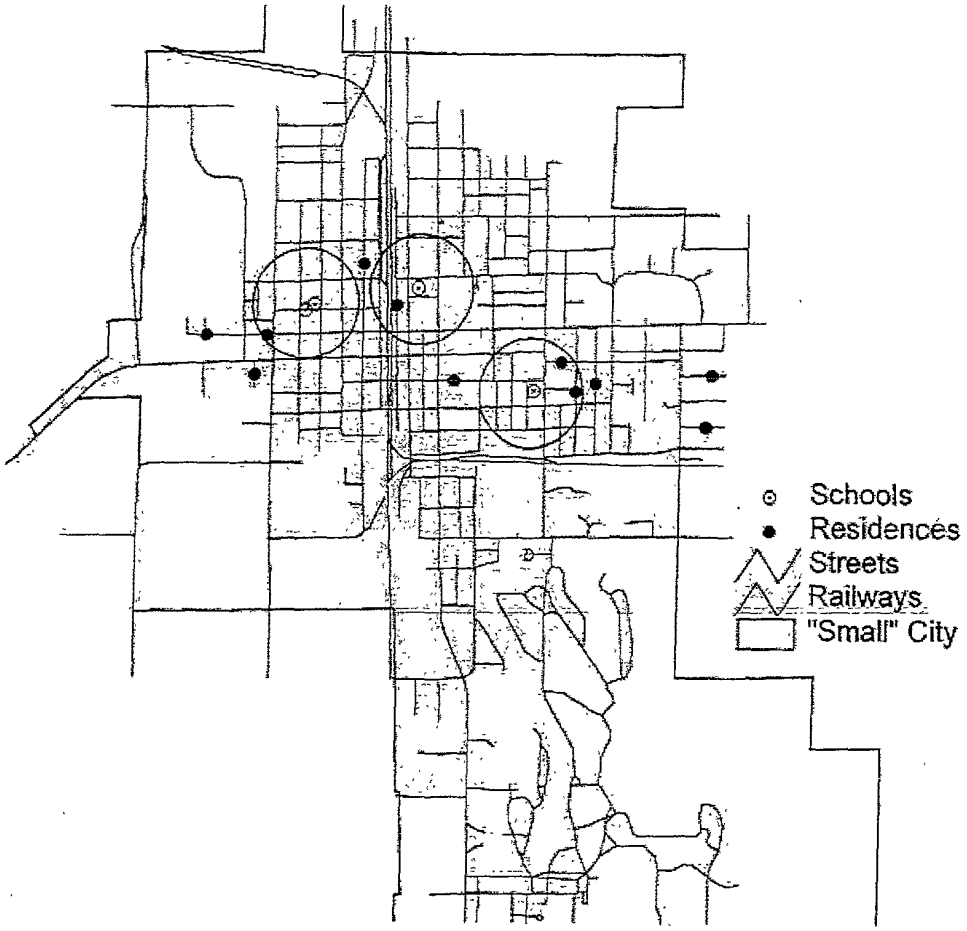


Source: Washington Metropolitan Police Department / Author: Dan Sadler

FIG. 13

EXPRESS MAIL NO. EV 042 276 905 US

REGISTERED CHILD SEX OFFENDER
REPRESENTATION "SMALL" CITY



1.4 0 1.4 Miles

SOURCE: FAIR COUNTY LAW ENFORCEMENT AGENCIES
NOTE: THE BUFFER CONTAINS 1000FT OF THE AREA.

FIG. 14